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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,935	11/26/2003	Yoshinobu Hasuka	SIW-076	9425

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EXAMINER	
LE, TOAN M	

ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H-A

Office Action Summary	Application No.	Applicant(s)	
	10/723,935	HASUKA ET AL.	
	Examiner	Art Unit	
	Toan M. Le	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-13* is/are allowed.

6)☒ Claim(s) *14,15,17,18,20 and 21* is/are rejected.

7)☒ Claim(s) *16 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/26/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 14-15, 17-18, and 20-21 are rejected under 35 U.S.C. 102(a) as being anticipated by "Systematic Design of Fuel Cell Powered Hybrid Vehicle Drive Train", Gao et al. (referred hereafter Gao et al.).

Referring to claim 14, Gao et al. disclose a method of controlling a fuel cell, comprising the steps of:

calculating a capacitor maximum power value P_{fc} (equation 2) a capacitor that is charged by power from the fuel cell (page 606, 1st col., 16-31);

calculating a motor power limit value for a motor P_{motor} (equation 2) based on an output power of the fuel cell and the capacitor maximum power value (page 606, 1st col., lines 16-31);

calculating a real power value of the motor P_{motor}/η_{motor} (equation 2) corresponding to an actual amount of power that drives the motor (page 606, 1st col., 16-31);

comparing the real power value to the motor power limit value; and

adjusting the real power value if the real power value is larger than the motor power limit value (equation 2; page 606, 1st col., lines 16-31).

As to claim 15, Gao et al. disclose a method of controlling a fuel cell, wherein the step of adjusting the real power value comprises reducing the real power value to an amount that is equal to or less than the motor power limit value (equation 2; page 606, 1st col., 16-31).

Referring to claim 17, Gao et al. disclose a method of controlling a fuel cell, wherein the step of adjusting comprises outputting a control command to a motor power control module for directing the real power of the motor to be made equal to the motor power limit value (equations 2-4; pages 606, 1st col., last paragraph, 2nd col., 1st and 2nd paragraphs).

Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claim 18, Gao et al. disclose a method of controlling a fuel cell vehicle including a drive motor for driving the vehicle, a fuel cell that generates electricity from a reacting gas that undergoes an electromechanical reaction, and a capacitor that is charged by at least one of power from the fuel cell and a regeneration power of the driver motor (figure 1), the method comprising the steps of:

generating power with the fuel cell; and

controlling an amount of real power applied to the drive motor based on an amount of the power generated by the fuel cell and a capacitor maximum power value, wherein the capacitor maximum power value is a maximum value of the power for charging and discharging the capacitor (equations 2-5; page 606, 1st col., last paragraph, 2nd col., 1st and 2nd paragraphs; figure 5; page 608, 1st col., 1st and 2nd paragraphs).

As to claim 20, Gao et al. disclose a method of controlling a fuel cell vehicle including a drive motor for driving the vehicle, a fuel cell that generates electricity from a reacting gas that undergoes an electromechanical reaction, and a capacitor that is charged by at least one of power from the fuel cell and a regeneration power of the driver motor (figure 1), further comprising the step of calculating a motor power limit value based on the capacitor maximum power value (equation 2; page 606, lines 16-31).

Referring to claim 21, Gao et al. disclose a method of controlling a fuel cell vehicle including a drive motor for driving the vehicle, a fuel cell that generates electricity from a reacting gas that undergoes an electromechanical reaction, and a capacitor that is charged by at least one of power from the fuel cell and a regeneration power of the driver motor (figure 1), wherein the step of controlling comprises controlling the amount of real power applied to the drive motor, such that a detected value of the real power is equal to or less than the motor power limit value (equations 2-4; pages 606, 1st col., last paragraph, 2nd col., 1st and 2nd paragraphs).

Claim 19 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Allowable Subject Matter

Claims 1-13 are allowed.

The primary reason for allowance of the claims is the inclusion of a capacitor temperature detecting means that detects a temperature of the capacitor for setting a maximum power for the capacitor for charging and discharging the capacitor to compute a motor power limit value based on output power of the fuel cell and the capacitor maximum power and a real power of the drive

motor for controlling an amount of real power applied to the drive motor such that the real power of the motor is equal to or less than the motor power limiting value so as to meet the power demand while maintaining/regulating the energy level of power sources of fuel cell and/or capacitor in a fuel cell vehicle. Gao et al. neither teach nor suggest a capacitor temperature sensor to detect a temperature of the capacitor in controlling an amount of real power applied to the drive motor based on the amount of the power generated by the fuel cell and the capacitor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M. Le whose telephone number is (571) 272-2276. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Toan Le

March 14, 2005

BRYAN BUI
PRIMARY EXAMINER

3/16/05